

Total Maximum Daily Load (TMDL) Program



Note: This information is provided for reference purposes only. Although the information provided here was accurate and current when first created, it is now outdated.

The materials which follow were developed by FACA workgroups for discussion by the TMDL Federal Advisory Committee. They are the Committee's chosen method by which to deliberate the issues under consideration. These papers are not to be misconstrued as representing EPA policy or guidance. Similarly, the Final TMDL FACA Report does not necessarily represent the views of EPA.

Federal Advisory Committee on Total Maximum Daily Loads (TMDLs)

February 19-21, 1997
TMDL FACA Committee Meeting
in Galveston, TX

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Total Maximum Daily Load (TMDL) Program

DRAFT MEMORANDUM

TO: Members of the Federal Advisory Committee on the TMDL Program
FROM: Members of the Framework Workgroup
DATE: 2/4/97
RE: Status of Framework Workgroup Activities

Attached is a proposed problem statement, vision, and mission statement for the TMDL program which resulted from our three teleconferences in January. We used the "Ideas for a Framework for the TMDL Program" document prepared by the facilitators and EPA (and mailed to all Committee members on January 10, 1997) as our starting point, but you will see that we have made a number of important changes for your consideration. We have included a "placeholder" in the attached document for a possible set of overarching principles that we anticipate may emerge from the work of the other workgroups and the full Committee as our efforts progress.

We also plan to discuss with you in Galveston our recommendation for the future role of the Framework Workgroup. The members of our group sense that we may be able to best help the full Committee by helping to integrate and monitor workgroup activities to help assure a well-coordinated set of recommendations for the Committee's final report. Specifically, the Framework Workgroup could:

- assist in identifying over-arching principles,
- assist in identifying any gaps or unnecessary overlaps in workgroup coverage of TMDL program issues,
- monitor the consistency of the framework document (vision and mission) with workgroup recommendations and suggest any needed adjustments or clarifications, and
- provide feedback to workgroups regarding which issues should be assigned highest priority for their development of recommendations.

If the full Committee agrees that the Framework Workgroup could and should serve in this ongoing capacity, we suggest that all other Workgroups should be represented on the Framework Workgroup. This will require some changes in workgroup assignments, which we should discuss in Galveston.

We look forward to discussing the attached document and our other recommendations with

DRAFT - Jan. 30, 1997

Draft Framework for the TMDL Program*

*** This draft document is for discussion purposes ONLY and is not for citation or quotation. This draft was created for members of the Federal Advisory Committee on TMDLs and does not necessarily reflect the Committee's views or those of EPA.**

Problem Statement

Over 40% of the nation's assessed waters have been identified as failing to fully support their designated beneficial uses, and many waters that are currently healthy face threats from future activities. TMDLs, as well as other Clean Water Act programs and State water quality programs, are important tools for solving water quality problems. TMDLs have not yet been developed for most impaired waters, partly because the focus of water quality protection has been on other programs or activities. However, the TMDL program has received increasing attention in recent years. Concerns about program implementation include whether all waters needing TMDLs are being identified, whether TMDLs are being developed rapidly enough given the current state of water quality in the U.S., whether resources currently allocated to support the TMDL program are sufficient and efficiently used, whether TMDL content and implementation is adequate to meet the goals of the Clean Water Act, and whether available science and tools are appropriate to support the program's goals.

Vision

States, Tribes, EPA and the public work together, within a watershed process where appropriate, to use the TMDL program, integrated with other Clean Water Act programs and requirements, to help assure attainment and maintenance of water quality standards and beneficial uses. This is accomplished through scientifically sound analysis, fair and cost-effective allocation of load reduction responsibilities, and efficient use of resources to prioritize and solve problems.

Mission

The mission of the TMDL program is to continuously improve water quality and the health of aquatic ecosystems with substantial involvement of stakeholders through an appropriate balance of five key components of the program: comprehensiveness of lists, timeliness of TMDL development, sound science, a program that leads to implementation of appropriate pollution controls and restoration of healthy water bodies, and an ongoing evaluation of program effectiveness.

- A **comprehensive** list identifies all waters that are impaired or threatened, i.e., that do not or will not meet water quality standards including existing and designated beneficial uses, and makes this information readily available to the public.
- A **timely** program promptly develops TMDLs, including specific targets and allocations of loading reduction and other water quality restoration and improvement responsibilities, for waters needing TMDLs.

- A **scientifically sound** program assures that good science and adequate data are used in identifying impaired and threatened waters and in developing TMDLs.
- An effective TMDL program leads to **implementation** of equitable and cost-effective pollution controls and restoration of healthy waterbodies resulting in water quality improvements adequate to attain and maintain water quality standards (including beneficial uses) by relying on a wide variety of water quality programs, activities, and authorities.
- A well-managed TMDL program provides for continued programmatic and water quality **monitoring** of the TMDL process and the effectiveness of implementation and is efficiently coordinated with other Clean Water Act programs.

[Reserved Placeholder for Over-arching Principles]

The Framework workgroup believes that, as the work of the Committee and its workgroups progresses, certain over-arching principles may be identified that should be set forth in a reserved section. Examples of subjects that may be suitable for principle development could include such things as:

- *Adequacy and Efficient Use of Resources,*
- *Public Participation, and*
- *Watershed Management.*

Appropriate/necessary principles are expected to emerge from future discussions of the individual workgroups and the full Committee. The Framework Workgroup will revisit this section at a later date when these discussions are further along.



Total Maximum Daily Load (TMDL) Program

MEMORANDUM

TO: Members of the Federal Advisory Committee on the TMDL Program
FROM: Members of the Listing Workgroup
DATE: 2/4/97
RE: Status of Listing Workgroup Activities

Attached are materials now being used by the Listing Workgroup in its discussion. First, the current version of the "Reorganized Issues List" is included, reflecting recent and ongoing refinements to the "brainstormed" issues produced by the full Committee in Herndon. This document is helping to guide our discussions but remains a dynamic document, subject to revision as appropriate. Second, we have included the current very rough draft summary of issues discussion and options identified to date. This draft was prepared by the facilitator to capture the main points agreed upon during our three teleconferences in January. We have scheduled a fourth teleconference for February 11 and will be prepared to update the full Committee on the status of our work in Galveston.

To summarize, the issues we are addressing fall roughly into two broad categories:

1. Comprehensiveness (or content) of Section 303(d) Lists, and
2. Management of Section 303(d) Lists.

1. **COMPREHENSIVENESS:** To date, most of our discussion has focused on this first category of issues. Examples of the key points we are considering include:

- Impaired Waters:

- We have discussed whether various types of impairments should be included on the lists and have generally concluded that the Clean Water Act is clear that failure to meet any component of the applicable water quality standard (designated use, numeric, narrative, antidegradation, wetlands criteria, flow standards, etc.), once identified, should be listed. We are beginning to address a number of questions relating to how impairments are identified, such as the appropriate geographic scale.
- We are also beginning to address interpretation and implementation of the exception to the listing requirement for

situations where existing controls are seen as adequate to assure attainment of standards. (We have dubbed this the "expected to meet" issue.)

- Threatened Waters: The statute does not explicitly address the important question of how to define or address "threatened waters" in the listing process and there is little on this point in EPA's current guidance or regulations. We have identified a range of possible preliminary options for dealing with this and believe it will be an important issue for the Committee to address.
- Consistency Concerns:
 - Many inconsistencies in State lists occur because of differences in State water quality standards and monitoring programs. These may be beyond the Committee's charge, although we reserve the possibility of making some general observations to EPA about the need to address inconsistencies in these programs that are so closely related to the TMDL program.
 - Some inconsistencies in State listing approaches result from differences in how States make listing decisions. The Workgroup generally believes that a high degree of consistency is desirable in this regard, so we are discussing whether and how EPA's guidance and regulations could provide better guidelines on such things as documentation, use of BPJ, etc., while still allowing an appropriate degree of flexibility for States facing different types of problems.

2. MANAGEMENT OF LISTS: We have just begun to discuss some of the list management issues. Among the key issues are:

- Targeting Listed Waters for TMDL Development: Should EPA be more directive or provide more advice to States about which TMDLs should be developed first?
- Pace: How often should lists be developed and how fast should TMDLs be completed? [We recognize a potential overlap with the Management and Oversight Workgroup here but see a need to consider this question in our discussions.]
- Implications of Being Listed: Should growth or other activities be prohibited on an impaired water that doesn't yet have a TMDL? If so, what would such prohibitions be in light of the need to be fair as well as to help improve water quality?
- Evaluation/Follow-up: When should a water be removed from the Section 303(d) list? When a TMDL is completed, should the water move from the 303(d) list to some other "watch list" to be monitored with regard to whether water quality standards are attained? What other tracking/reporting measures might be needed to follow up on listed waters?

This is by no means an exhaustive description of our activities or the issues we plan to address in the future. However, we hope the above summary will help focus our discussions with the

Working Draft - Feb. 4, 1997

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LISTING WORKGROUP: REORGANIZED ISSUES LIST

Note: the following issue areas have been modified and reorganized per the suggestion of Listing Workgroup participants (2-4-97). New suggested language is italicized and is attributed to a specific person (initials only), suggested deletions are struck through. Where specific new language was not provided, the facilitator attempted to summarize the Workgroup member's viewpoint.

I. PURPOSE OF THE 303(d) LIST

- A. COMPREHENSIVENESS OF LISTS:** How comprehensive should section 303(d) lists be? Should they include threatened waters? Should they include waters impaired by pollutants for which TMDL development is not yet feasible, e.g., waters impaired by atmospheric deposition? Should they include waters for which there are no possible controls, e.g., waters impaired by banned pesticides?
- B. INAPPROPRIATE/INADEQUATE STANDARDS:**
 - 1. How should State section 303(d) lists address waters for which water quality standards are inadequate?
 - 2. How should State section 303(d) lists address waters for which water quality standards are inappropriate?
 - 3. How should State section 303(d) lists address waters for which water quality standards are likely to change?
- C. INTEGRATION AND CONSISTENCY OF CWA ASSESSMENTS:** What should be the relationship of the section 303(d) list to other lists and assessments of threatened and impaired waters (e.g., 305(b) Water Quality Assessments and 319 Nonpoint Source Assessments) developed under the Clean Water Act? Should these listing and assessment requirements be consolidated?
- D. DEFINING THE LIST:** What is the 303(d) list: Is it a "TMDLs to-do list", a list of all remaining water quality problems in the State, or something else?

II. BASIS FOR LISTING

- A. LISTING CRITERIA:** Should national listing criteria be developed to ensure national consistency? What would nation-wide listing standards or

criteria look like? For example, if criteria are developed, should they address:

1. when and to what extent best professional judgment can be relied upon,
2. development and use of a listing decision matrix,
3. minimum data quality requirements for listing decisions, and
4. documentation of listing determinations?
5. Finally, can the listing process be standardized while protecting state program flexibility?

B. SPECIFIC LISTING SITUATIONS TO CONSIDER:

1. Should section 303(d) lists take into account impairments due to
 - a. non-attainment of narrative standards (e.g., for "clean" sediment that may smother anadromous fish spawning habitat)
 - b. beneficial use designation (e.g., drinking water protection or cold water fishery) where numeric criteria are not developed?
2. Should section 303(d) lists take into account waters that do not meet antidegradation requirements or that are threatened (e.g., due to projected population growth or development)?
3. Should section 303(d) lists include wetlands?
4. Should section 303(d) lists take into account water-quantity based impairments (e.g., for anadromous fisheries or irrigation projects that rely on the availability of specific quantities of water)?
5. Should section 303(d) lists take into account environmental justice concerns (e.g., subsistence fishing) and/or Tribal treaty violations?
6. Should section 303(d) lists take into account the cultural value of waterbodies? [facilitator's note: I could not reach Jim Hill to supply an example for this issue.]

C. LISTING OF IMPAIRMENTS WHERE A TMDL MAY BE INAPPROPRIATE OR INEFFECTIVE:

1. Regulatory effectiveness: Should a water be listed when a TMDL might not address the source of impairment (e.g., in the cases of airborne deposition, contaminated bottom sediments, or impairments due to nonpoint source that lack regulatory controls)?
2. Technical feasibility: Should a waterbody be listed if a TMDL may not be technically feasible under existing local, State, or Federal water quality management approaches (e.g., NPDES permits or nonpoint source control programs)? [This may occur

when there is a lack of sufficient data on sources and/or the waterbody or there are difficulties in modeling fate and transport]

D. **GEOGRAPHICAL SCALE:** Should EPA establish guidelines for setting a geographic scale at which waters are to be listed? If yes, what should it be?

E. **NOT LISTING WATERS "EXPECTED TO MEET" WATER QUALITY STANDARDS BY SOME OTHER MEANS:** What constitutes "expected to meet" criteria? Should waterbodies that are "expected to meet" water quality standards be excluded from State section 303(d) lists? If so, what assurances would be needed to warrant such exclusions? What listing actions need to be taken for such waters when they fail to achieve compliance with water quality standards or fulfill "expected to meet" criteria?

F. **BURDEN OF PROOF:** What is the appropriate State/Tribal burden of proof for not listing (i.e., what constitutes "good cause") and should State criteria for listing waters under 303(d) be developed to be consistent with that burden of proof determination?

G. **LISTING FOR ALL VIOLATED PARAMETERS:** Should State/Tribal 303(d) lists be required to delineate all components of water quality standard violations (e.g., note where and how any numeric criteria, narrative criteria, or designated beneficial uses were violated for a given water)?

III. LIST PRIORITIZATION/TARGETING

A. **PRIORITIZATION CRITERIA:** Should EPA establish factors that States must consider to develop their priority rankings? Or, should such factors be determined individually by States? What should the factors be (e.g., the existence of a watershed plan, availability of necessary data, tools and resources for TMDL development and implementation, costs and benefits), and how should they be taken into account in assigning priorities?

B. **TMDL DEVELOPMENT SCHEDULES:** Should EPA regulations continue to require States to identify those waters for which TMDLs will be developed over the next listing cycle? If EPA continues to require such targeting, how should the following factors inform targeting decisions:

1. Practicality/feasibility of developing and implementing the TMDL (in a given time frame)?
2. Resource constraints?
3. Environmental justice concerns?
4. Risk to human health and the environment?
5. Difficulty in determining source(s) of impairment (i.e., to what extent should complex, multiple sources of impairment determine a waterbody's target status)?
6. Physical size of listed waterbody?
7. Equity issues: should waterbodies experiencing growth (human population, industry, etc.) be targeted sooner?

Further, should EPA require States to provide schedules for the development of TMDLs for all waters on the section 303(d) list?

IV. IMPLICATIONS OF BEING LISTED/NOT BEING LISTED

A. IMPLICATION OF BEING LISTED:

1. What should be the implication of a water being listed? If a water is placed on the section 303(d) list, but a TMDL has not yet been completed/approved, should there be limitations on development, industry expansion, timber harvesting, other activities? For example, should all new or expanded source activities be put on hold? Which ones? When can source activities expand?
2. COMPLIANCE SHIELD FOR PERMITS IN LISTED WATERS: When a water is listed, but a TMDL not yet approved, how can permit review and renewal be undertaken in a way that provides the permittee with an adequate compliance shield, given the requirement that permits provide for attainment of water quality standards?
3. Should there be equity considerations in allocating burdens among sources or classes of sources? If so, what are they and how should they be taken into account? How can equity considerations be assured in allocating burdens associated with the potential negative consequences of being "water quality limited" [e.g. extra permitting scrutiny, more expensive controls] (especially among classes of sources)?
4. What are the potential implications of listing for community and economic development?

V. DE-LISTING

NOTE: the Workgroup may want to discuss whether 303(d) "de-listing" actually occurs or whether there is only the process of not listing a waterbody during the next listing cycle. Following that discussion, the Workgroup may want to consider if issues in this issue area should be re-categorized.

- A. **REMOVING WATERS FROM THE LIST:** Once a waterbody is listed, how and when may it be removed from the section 303(d) list? What factors should be considered in making this determination? For example, should a water be removed from a section 303(d) list if a Use Attainability Analysis suggests that an applicable water quality standard is unattainable? Finally, when waters are removed, what should the process be?

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OPTIONS DEVELOPED FOR LISTING ISSUES

NOTE: italicized portions of the text were drafted by the facilitator for the Listing Workgroup's consideration. The Workgroup has not yet had an opportunity to review, discuss, and modify such language.

II. BASIS FOR LISTING

- A. **LISTING CRITERIA:** Should national listing criteria be developed to ensure national consistency? What would nation-wide listing standards or criteria look like? For example, if criteria are developed, should they address:
1. when and to what extent best professional judgment can be relied upon,
 2. development and use of a listing decision matrix,
 3. minimum data quality requirements for listing decisions, and
 4. documentation of listing determinations?
 5. Finally, can the listing process be standardized while protecting state program flexibility?

DISCUSSION:

The Listing Workgroup determined that there should be a high degree of consistency among States *but that, at the same time, it is important to retain State flexibility in listing decisions.* The group discussed various mechanisms (e.g., changes in or additions to regulations/guidance) through which greater consistency can best be assured and *flexibility protected.* One option discussed by the Workgroup was to develop a matrix that displays statutory and regulatory requirements in a way that distills and highlights specific aspects of a preferred/recommended listing process. A follow-up issue the Workgroup has yet to fully explore is whether existing EPA regulations or guidance could effect the desired consistency if they were better communicated or implemented.

OPTIONS TO IMPROVE NATIONAL CONSISTENCY IN 303(D) LISTING DECISIONS:

1. Develop new or additional regulations/guidance tools on substantive listing criteria.
2. Develop new or additional regulations or national guidance on procedural consistency, (e.g., to standardize documentation of States' decisions not to list a water).
3. Develop new or additional regulations or national guidance on consistency in States' decision-making processes (e.g., that directs the State when and to what extent BPJ can be relied upon, or the minimum data quality requirements for listing decisions).
4. Rely on existing statutory, regulatory, and guidance documents to direct listing activities. (No Change)

B. **SPECIFIC LISTING SITUATIONS TO CONSIDER:**

1. Should section 303(d) lists take into account impairments due to
 - a. non-attainment of narrative standards (e.g., for "clean" sediment that may smother anadromous fish spawning habitat)
 - b. beneficial use designation (e.g., drinking water protection or cold water fishery) where numeric criteria are not developed?
 - c. nonattainment of antidegradation requirements?

DISCUSSION: The Clean Water Act requires that applicable water quality standards, including numeric and narrative criteria, waterbody uses (including beneficial uses), and

antidegradation requirements be considered during listing. Therefore, the Workgroup determined that, *consistent with the Clean Water Act*, a water that violates any component of the water quality standard must be included in the 303(d) list. As a corollary issue, the Workgroup also began to discuss ways to improve State/tribal consideration of non-numeric water quality standard requirements during listing.

2. Should section 303(d) lists take into account waters that are threatened (e.g., due to projected population growth or development)?

DISCUSSION: The Clean Water Act does not explicitly require *States to include threatened* waters on the 303(d) list. There is no statutory definition of "threatened" waters for purposes of 303(d) listing. Nonetheless, there may still be compelling reasons to list threatened waters. The Workgroup briefly discussed the potential role of listing threatened waters in implementing Clean Water Act antidegradation requirement as well as the economic benefits of installing pollution controls during construction of facilities (vs. retrofitting existing facilities with pollution controls) and the value of considering water quality when making community growth and development decisions.

OPTIONS:

1. EPA should develop a clearer regulatory definition of "threatened" waters for 303(d) listing purposes, and continue to require that they be listed.
2. Individual States/Tribes should determine whether or not to list threatened waters.
3. Threatened waters should not be included on 303(d) lists.
3. Should section 303(d) lists include wetlands?

DISCUSSION: In 1990, EPA issued guidance recommending that States include the term "wetlands" within the legal definitions of their respective State waters. Wetlands are defined for regulatory purposes (by EPA and the U.S. Army Corps of Engineers) as "areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances, do support, a prevalence of vegetation typically adapted for life in saturated conditions..." According to a 1994 report, thirty-six States define wetlands as waters. As of 1994, 19 State programs said they had water quality standards that applied to wetlands. According to EPA, few of these water quality standards were developed specifically in consideration of wetlands' special features (e.g., unique hydrology, nutrient concentrations, or animal and plant species). It is also unclear whether (or how) States monitor water quality in wetlands. For these reasons, it may be difficult for States to develop listing criteria or TMDLs for wetlands. Generally, State and EPA wetlands program resources are focused on preventing the destruction and loss of wetlands.

OPTIONS:

1. List wetlands. (No Change. EPA's current position is to list impaired wetlands, although few currently are listed.)
2. List wetlands only as part of larger waterbodies (e.g., watersheds).
3. Push for greater emphasis on listing wetlands. Ask States to develop specific water quality standards for wetlands.

4. Do not list wetlands.
5. The TMDL Advisory Committee decides not to address listing of wetlands given the current status of water quality standards for wetlands.
4. Should section 303(d) lists take into account water-quantity based impairments (e.g., minimum flows for anadromous fisheries or irrigation projects)?

DISCUSSION: While *courts have upheld that* flow requirements can be part of a State's water quality standards (e.g., as demonstrated in the PUD No.1 of Jefferson County and City of Tacoma v. Wash. Dept of Ecology case in Washington), there is currently no uniformity in the way States address flow in water quality standards.

OPTIONS:

1. List waterbodies not meeting minimum flow requirements where they exist.
5. Should section 303(d) lists take into account environmental justice concerns (e.g., subsistence fishing) and/or Tribal treaty violations?
6. Should section 303(d) lists take into account the cultural value of waterbodies?

C. LISTING OF IMPAIRMENTS WHERE A TMDL MAY BE INAPPROPRIATE OR INEFFECTIVE:

1. Regulatory effectiveness: Should a water be listed when a TMDL might not address the source of impairment (e.g., in the cases of airborne deposition, contaminated bottom sediments, or impairments due to nonpoint source that lack regulatory controls)?
2. Technical feasibility: Should a waterbody be listed if a TMDL may not be technically feasible under existing local, State, or Federal water quality management approaches (e.g., NPDES permits or nonpoint source control programs)? [This may occur when there is a lack of sufficient data on sources and/or the waterbody or there are difficulties in modeling fate and transport]

D. GEOGRAPHICAL SCALE: Should EPA establish guidelines for setting a geographic scale at which waters are to be listed? If yes, what should it be?

DISCUSSION: *Currently, States have much flexibility in setting the geographic scale at which waters are listed under Section 303(d) of the Clean Water Act. Workgroup members expressed support of this approach but, in consideration of the trade-offs between economies of scale and water quality standards attainment goals and with an appreciation of the difficulties States/Tribes face in determining appropriate scales, suggested that States may benefit from additional advice from EPA in setting such geographic scales for individual waters. The Workgroup further determined that, as a general rule, the size (or reach) of the listed water should be determined based on the nature and extent of the impairment. For example, the scale should address possible sources or causes of the impairment. These judgments will also help inform prioritization and targeting activities. Finally, the Workgroup noted that the size (or reach) of a listed water quality limited segment does not automatically determine the geographic scale for the TMDL, partly because more may be known about the sources and extent of impairment at the time of TMDL development. Therefore, the criteria for setting geographic scale of waters during*

these two processes (listing and TMDL development) clearly can vary.

OPTIONS TO IMPROVE GEOGRAPHIC SCALE-SETTING DURING 303(D) LISTING:

- 1. Continue to list waters under 303(d) at a geographic scale that corresponds to the nature and extent of the impairment.*
- 2. Advise EPA to develop and make available to States and Tribes information resources (e.g., case studies) that suggest how to set appropriate geographic scales for listing waters under Section 303(d).*

- E. NOT LISTING WATERS "EXPECTED TO MEET" WATER QUALITY STANDARDS BY SOME OTHER MEANS:** What constitutes "expected to meet" criteria? Should waterbodies that are "expected to meet" water quality standards be excluded from State section 303(d) lists? If so, what assurances would be needed to warrant such exclusions? What listing actions need to be taken for such waters when they fail to achieve compliance with water quality standards or fulfill "expected to meet" criteria?

DISCUSSION: *The term "expected to meet" is not found in the statute or regulations governing the TMDL process but can be inferred from Section 303(d)(1)(A) and (B) and especially the regulatory language found at 40 CFR 130.7(b). This section of the regulations directs States to identify (and then list) waters for which technology-based effluent limitations and other pollution control requirements are not stringent enough to achieve water quality standards. Currently, States have the option to list (or not list) waters that fail to meet water quality standards but for which other appropriate pollution controls are planned or in effect. These are the so-called "expected to meet" waters. EPA guidance (but not the regulations) further states that these waters can only be omitted from the 303(d) list when such controls are enforceable, specific to the pollution problem, stringent enough to meet water quality standards, and either being implemented or subject to an implementation schedule. EPA does not suggest how long the implementation schedules should be or how long "expected to meet" waters that fail to meet water quality standards can stay off the 303(d) list.*

OPTIONS FOR ADDRESSING "EXPECTED TO MEET" WATERS LISTING ISSUES
[NOT NECESSARILY EXCLUSIVE]:

- 1. List all waters except those that can be expected to meet water quality standards in a specified time frame (e.g., permit cycle) under the Clean Water Act.*
- 2. Relax guidance so that waters that are expected to meet water quality standards following implementation of non-enforceable control mechanisms (e.g., for nonpoint sources) or natural attenuation of pollutants need not be listed. States have flexibility to determine at what point, after failing to meet water quality standards, such waters are added to the 303(d) list for further action.*
- 3. Waters that are expected to meet water quality standards following the application of non-Clean Water Act regulations (that may or may not be enforceable under these other State and/or federal statutes) need not be listed. Such statutes may include the Clean Air Act. States have flexibility to determine at what point after failing to meet water quality standards (perhaps related to the enforceability/time frames laid out in the given statute), such waters are added to the 303(d) list for action .*
- 4. Waters that are expected to achieve water quality standards after the introduction of new production technologies, market shifts, application of emerging or anticipated*

control technologies, or other such changes, need not be included in a State's 303(d) list. States have flexibility to determine at what point, after failing to meet water quality standards, such waters are moved to the 303(d) list for action.

- 5. Waters that are expected to achieve water quality standards following the (anticipated) removal of sources/causes of impairment need not be listed. States have flexibility to decide at what point to list a water if, after the removal of such sources/causes, water quality standards are still not met.*
 - 6. Waters not listed because they are "expected to meet" should be periodically re-evaluated. Those that fail to comply water quality standards (regardless of the basis for the original expectation of compliance), or that fail to implement the conditions on which the water was exempted from listing in the first place, should be placed on the 303(d) list.*
 - 7. "Expected to meet" waters should be required to demonstrate some minimum level of assurance to be exempted from 303(d) listing.*
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Total Maximum Daily Load (TMDL) Program

DRAFT MEMORANDUM

TO: Members of the Federal Advisory Committee on the TMDL Program
FROM: Members of the Science and Tools Workgroup
DATE: 2/4/97
RE: Status of Science and Tools Workgroup Activities

Attached is the current "Reorganized Issues List" the Science and Tools Workgroup is using to guide its discussions. This is a dynamic document which we expect to continue to refine as our work progresses. To date, we have held three teleconferences and begun to flesh out options for a number of the key issues. Members of our workgroup have contributed a template to assist in addressing the issues before us and have drafted options for a number of the issues.

We have asked the facilitators to assist us in revising and defining some of the options and have not yet had an opportunity to discuss some of the others, so we believe it would be premature to distribute the current drafts to the full Committee at this time. We will, of course, update you on our work and discuss the options with you in Galveston.

To summarize the status of our discussions, we see our work as falling under two broad categories or themes:

- The "Degree of Rigor" Issue, and
 - Advice to EPA on Improving Science and Tools.
1. **DEGREE OF RIGOR:** Much of our discussion to date has concerned how and when to proceed with decisionmaking in light of uncertainty and the degree of data quality and quantity necessary for decisionmaking in the 303(d) listing and TMDL development processes. While we have not reached complete agreement on this point, we recognize that it is important to assure a higher degree of rigor when the consequences of the decision are greater. We have discussed a number of approaches that may be appropriate in tailoring decisions to different situations. These include phased TMDLs, complex TMDLs, simple TMDLs, and the possibility of taking uncertainty into account in scheduling (targetting) TMDL development.
 2. **ADVICE ON IMPROVING SCIENCE AND TOOLS:** We have begun to discuss

the key technical and scientific tools that are needed to assure a strong TMDL program. In this area, it is important for us to continue to improve our understanding of the activities already underway in EPA so that we can suggest any appropriate new directions. Generally, we agree that EPA needs to improve its tools and that our challenge as a workgroup is to develop useful advice on areas of emphasis and greatest need. To date, much of our discussion has focused on the monitoring data that are key to assuring good decisionmaking in both the 303(d) listing process and in TMDL development. We are working to identify ways the quantity and quality of data used in the TMDL program can be improved.

While this is not a complete description of our efforts to date, we hope it will help to prepare you for discussions in Galveston. We look forward to reviewing our thoughts with you in more detail and obtaining your comments and guidance.

Working Draft -- 1-31-97

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Science and Tools Workgroup's Re-organized Issues List

1. Decision-making under uncertainty

- a. What do different levels of uncertainty imply about when and what different TMDL activities are warranted (e.g., calculating loadings, establishing load allocations, control actions)? How can phased TMDLs and targeting address problems with uncertainty? How does the required margin of safety take into consideration different types and different levels of uncertainty?
- b. What is the appropriate level of analysis for TMDL development? What is the role of best professional judgment?
- c. What are the steps, the process, the principles, and the possible methods that are necessary or available to evaluate and apply narrative criteria and beneficial use support when numeric criteria do not exist or where numeric criteria are inadequate? Items to consider regarding this question include (but are not limited to):
 - i. when and how can biocriteria best be applied?
 - ii. when and how can whole effluent toxicity best be applied?
 - iii. how can TMDLs be established for waters impaired by habitat modification?
 - iv. use of guidance values (e.g. sediment contamination and tissue levels for toxins);
 - v. adding risks where multiple toxic constituents are present;
 - vi. evaluating adequacy of in-stream flows;
 - vii. changing assumptions upon which existing numeric criteria are based (e.g., change rates of fish consumption);
 - viii. when should narrative criteria and beneficial use support be

- evaluated (e.g. at listing and/or at the outset of the TMDL process);
 - ix. assuring that existing uses are adequately understood prior to monitoring and evaluation.
 - x. How should highly exposed sub-populations be taken into account when developing a TMDL for human health criteria
- d. How can the need for certainty be resolved with the need for public "buy-in" of the process?
- e. What does the issue of uncertainty imply for the need for follow-up monitoring and/or subsequent phases of a TMDL?

2. Monitoring strategies

- a. Given TMDL program objectives, the many purposes of monitoring in the TMDL program (and throughout the Clean Water Act), and the resource demands on other aspects of the TMDL program (tool development, implementation), what strategies exist to use and collect data more effectively:
 - for TMDL listing?
 - for TMDL development?
- b. What, if any, changes in State/federal monitoring strategies are needed to address the following issues? Which of these are most important?
 - i. ensure that data gathered are tied to all aspects of water quality standards assessment and implementation (in particular, to ensure adequate attention to narrative criteria, beneficial and existing use support)
 - ii. ensure that sampling and monitoring methods conform to State water quality standard protocols (e.g., ensure appropriate timing in data collection)?
 - iii. determine the degree of QA/QC necessary for data to be used in various TMDL activities?
 - is it necessary to identify ("flag") occasions where data quality is unclear? to limit the use of questionable data in any way?
 - What is the role of best professional judgment in deciding data quality, and uses to be made of such data? "Whose" best professional judgement?
 - iv. ensure that data gathered are tied to models used to develop (and/or implement) TMDLs
 - v. ensure that there is sufficient information regarding flow (including variable flow, low flow, high flow, sufficiency of in-stream flow), and seasonal variability
 - vi. ensure appropriate geographical or spatial (e.g., optimum size of waterbody or watershed) aspects of TMDL development are taken into account?
 - vii. ensure appropriate temporal (e.g., need for daily or monthly information) aspects of TMDL development are taken into account?
 - viii. better measure impacts from forestry, agriculture, and other nonpoint sources?
 - ix. ensure monitoring conveys information about "natural background" sources (focuses attention on isolating load contributed by natural background, particularly for purposes of .303(d) listing)

- x. gather more information on atmospheric sources of pollutants? (to identify what atmospheric sources are, the amount of load they contribute, and how loads from atmospheric sources may be controlled).
 - xi. ensure appropriate effort on gathering data on sources, in addition to data on water quality?
 - xii. ensure efficient/appropriate timing in data collection?
 - xiii. to ensure a policy exists for using sediment and tissue residue data for toxic contaminants?
 - xiv. to ensure information is available on how and why data were collected
- c. What is the appropriate role for citizen monitoring in the TMDL program?

3. Effectiveness of Best Management Practices

- a. If there is insufficient information about the effects of best management practices for traditional TMDL development and implementation, what approach should be taken? How might an iterative approach and/or "best professional judgment" be used in situations where significant uncertainty remains?
- b. Can demonstration projects be used in the TMDL process to address uncertainties about BMP effectiveness?

4. Model enhancements

- a. What should be EPA's priorities for model development and enhancement? To what extent are the following improvements needed? Which are most important?
 - i. research on fate and transport surrogates for water quality parameters (e.g., total suspended solids)
 - ii. better multi-dimensional modeling (e.g., of estuaries)
 - iii. enhancements of models focusing on non-flowing systems (lakes, wetlands)
 - iv. development of model versatility/broad applicability
 - v. development/enhancements of microbiological fate and transport models
 - vi. research on nutrient transfer
 - vii. enhancements of capability to estimate loads from forestry, nonpoint sources
 - viii. research on ways to use/integrate models developed by other agencies, entities (e.g., USDA-Agricultural Research Service), as well as State agencies
 - ix. enhancements to ensure water use/flow issues (withdrawals) are taken into account
 - x. model enhancements to take into account geographical or spatial (e.g., desired size of waterbody or watershed) desired waterbody or watershed) and temporal (e.g., need for daily or monthly information) aspects of TMDL development

5. Information sharing

- a. Many agencies, entities, and citizens possess information that can facilitate TMDL listing, development, and implementation. What is needed to

ensure/promote sharing of information needed for TMDL development (data collection, processing, and modeling)? What steps are most important to improve efficiency and conserve resources?

- b. What are the priority needs for technology/information support to States? to Tribes?
 - c. How can information about the TMDL program (listing, TMDL development, implementation) best be communicated to citizens and stakeholders?
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